IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (canceled)

2. (previously presented)The method of claim 3, wherein at least one of said at least one group of packets forming said bitstream are correlated with channel identification and time of transmission information for, respectively, indicating which of said plurality of available transmission channels will carry respective packet groups and the time said at least one group of packets are carried.

3. (previously presented) A method comprising:

associating each of at least one group of packets forming a bitstream with a stream identifier and a respective sequence code, said at least one group of packets comprising at least one bitstream packet;

transmitting, via any one of a plurality of available transmission channels, each of said at least one group of packets, said transmission channels nominally transmitting NULL packets in the event of underutilization, said at least one group of packets being transmitted in place of said nominally transmitted NULL packets to minimize the underutilization of said transmission channels; and

adapting a packet structure for at least one packet of said at least one group of packets to conform to a network packet structure suitable for use by said transmission channels.

4. (original) The method of claim 3, wherein:

said network packet structure comprises a header portion and a payload portion, said payload portion including at least one associated groups of packets.

5. (original) The method of claim 4, wherein:

said network packet structure includes stream identifier and sequence code information corresponding to said at least one group of packets included within said payload portion.

6. (original) The method of claim 5, wherein:

said network packet structure includes transmission channel and time of transmission information.

7. (previously presented)The method of claim 3, wherein said step of transmitting comprises:

determining a loading of each of a plurality transmission channels;

determining an allocation of bitstream packets among the transmission channels; and

inserting non-allocated bitstream packets into said transmission channels in place of said nominally transmitted NULL packets.

8. (original) The method of claim 7, wherein said allocation of bitstream packets among said transmission channels is determined with respect to at least one of the following criteria:

transmission channel data rates, bitstream data rate, transmission channel utilization level, transmission channel loading level, transmission channel scheduling, bitstream quality of service requirement.

9-12 (canceled)

13. (previously presented)Apparatus, comprising:

a bitstream processor, for associating each of at least one group of packets forming a bitstream with a stream identifier and a respective sequence code; and

a network interface, for causing said associated at least one group of packets to be inserted into any one of a plurality of available transmission channels in place of NULL packets nominally transmitted in the event of transmission channel underutilization to minimize the underutilization of said transmission channels,

wherein a packet structure associated with ones of said at least one group of packets is adapted to conform to a network packet structure suitable for use by ones of said plurality of available transmission channels.

14. (previously presented)The apparatus of claim 13, wherein said bitstream processor further associates at least one of said at least one group of packets forming said bitstream with channel identification and time of transmission information for, respectively, indicating which of said plurality of available transmission channels will carry respective packet groups from among the at least one group of packets and the time said respective packet groups are carried.

15. (previously presented)The apparatus of claim 14, wherein said network interface utilizes said channel identification and time of transmission information to allocate respective transmission channel time slots to said at least one group of packets to be transmitted via an identified channel.

16. (previously presented)A data structure adapted for transport of data via a communications network, said data structure comprising a header portion and a payload portion, said payload portion including at least one packet from an initial bitstream, said at least one packet having associated with it a stream identifier and a sequence code, said stream identifier identifying said initial bitstream, said sequence code identifying a relative position within said initial bitstream of said at least one packet,

wherein said data structure associated with said at least one packet is adapted to conform to a network packet structure suitable for use on at least one of a plurality of available transmission channels, and

wherein said at least one packet associated with said data structure is used to replace at least one NULL packet nominally transmitted in the event of transmission channel underutilization to minimize the underutilization of said transmission channels.

17. (original) The data structure of claim 16, wherein said stream identifier and said sequence code are stored within said header portion of said data structure.

18. (original) The data structure of claim 16, wherein said stream identifier and said sequence code are stored within the payload portion of said data structure.

19. (previously presented)The data structure of claim 16, wherein said at least one packet is further associated with a channel identification and a time of transmission information for, respectively, indicating which of a plurality of transmission channels will convey said at least one packet and at what time said at least one packet will be conveyed by ones of said plurality of transmission channels.

20. (original) The data structure of claim 19, wherein said channel identification and time of transmission information are stored within said header portion of said data structure.

21. (original) The data structure of claim 19, wherein said channel identification and time of transmission information are stored within the payload portion of said data structure.

REMARKS

The Office Action mailed March 3, 2006 has been reviewed and carefully considered.

Claims 2–8 and 13-21 are currently pending.

First, applicant wishes to direct the Examiner's attention to an Information Disclosure Statement (IDS) mailed on 2 February, 2004. In that statement, applicant cites two documents cited in an EPO search report; WO 01/47281 and WO 99/37048. Upon receiving the next Office Action (dated 3 May, 2005), a copy of the IDS signed by the Examiner was received. However, document WO 99/37048 was not initialed. It appears that the Examiner intended to place an initial by both documents, but inadvertently initialed one document and the header name line. Applicant requests that the Examiner again considers the WO 99/37048 reference and provide a copy of the IDS initialed in the appropriate spot.

Claims 2-8, 13-15, 16, and 19 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,754,271 to Gordon et al. (hereinafter "Gordon"). Claims 17-18 and 20-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon in view of U.S. Patent No. 6,373,905 to Yasuda et al. (hereinafter "Yasuda").

It is respectfully asserted that none of the cited references teach or suggest the following limitations of amended Claim 3:

> transmitting, via any one of a plurality of available transmission channels, each of said at least one group of packets, said transmission channels nominally transmitting NULL packets in the event of underutilization, said at least one group of packets being transmitted in place of said nominally transmitted NULL packets to minimize the underutilization of said transmission channels; and

Moreover, it is respectfully asserted that none of the cited references teach or suggest the following limitations of amended Claim 13:

> a network interface, for causing said associated at least one group of packets to be inserted into any one of a plurality of available transmission channels in place of NULL packets nominally transmitted in the event of transmission channel underutilization to minimize the underutilization of said transmission channels,

Moreover, it is respectfully asserted that none of the cited references teach or suggest the following limitations of amended Claim 16:

> wherein said at least one packet associated with said data structure is used to replace at least one NULL packet nominally transmitted in the event of transmission channel underutilization to minimize the underutilization of said transmission channels.

The Examiner has cited column 22, lines 55-60 and column 33, lines 35-40 of Gordon as disclosing the above-recited limitations of Claims 1, 13, and 16. The Applicant respectfully disagrees.

In contrast to the preceding limitations of Claims 3, 13 and 16, Gordon discloses, at column 33, lines 35-42, "[i]n an embodiment, video encoder 1226 'pads' the graphics portion ... with null data. The null data may be replaced by the graphic grid slices (e.g., **at a later step, within the LNE**). In this embodiment, video encoder 1226 is designed for, and efficiently processes only motion video information, excluding the graphics data".

Moreover, Gordon discloses, col. 22, at line 49 to col. 23, line 7:

> An aspect of the invention provides techniques to synchronize a number of streams to enable seamless switching at the terminal". Three synchronization methods are provided. In the first synchronization method, for each (e.g., 15-picture) sequence, the multiplexer in the local neighborhood equipment identifies the length of the longest IPG page for that particular sequence. The local neighborhood equipment then adds sufficient null packets to the end of each IPG page **so that all IPG pages have the same length**. ... The second synchronization method uses buffering for all packets for all IPG pages for each ... sequence. ... Switching packets are then added by the multiplier in the local neighborhood equipment at the end of each stream, which does not include the null padding. The third synchronization methods starts each sequence together and then waits until all packets for all IPG pages have been

generated. Once the generation of all packets is completed, switching packets are placed in the streams at the same time and point in each stream.

It is to be noted that in Gordon, the LNE referred to by the Examiner stands for "local neighborhood equipment", which is proximate to the receiver(s) (i.e., terminals 1208a-n) and not the transmitter (i.e., the head-end 1202). Accordingly, once a transmission has been made from the head-end, the transmission channels have already been filled with relevant data (i.e., non-null data). See, e.g., Gordon, FIG. 12A and col. 31, line 62 to col. 34, line 19.

Thus, in Gordon, in the first synchronization method, null packets are added at the LNE (which is already after transmission from the head-end) "so that all IPG pages have the same length". The second and third synchronization methods do not utilize null packing, instead adding/placing switching packets in the stream.

Underutilization of the transmission channels is not considered or even mentioned with respect to these three synchronization methods of Gordon. In contrast, the present invention, as essentially recited in Claims 3, 13, and 16, transmits at least one group of packets in place of nominally transmitted NULL packets (that are nominally transmitted in the event of underutilization) "**to minimize the underutilization of the transmission channels**".

Clearly, the transmission of null packets, without more (i.e., without replacement of null data with non-null data), and with the explicit reason of providing IPG pages of the same length, cannot be said to be for minimizing underutilization of communication channels. Moreover, even assuming *arguendo* that Gordon disclosed transmitting, in place of null packets, at least one group of packets that is to be transmitted via the available transmission channels, the only replacement disclosed in Gordon is performed at the LNE, which is remote from the transmitter (head-end) and, thus, cannot be performed to minimize underutilization of the communication channels, as essentially recited in Claims 3 and 13, as the data had already been transmitted from the head-end over the available communication channels in Gordon before any disclosed replacement is performed at the LNE (see, e.g., Gordon, FIG. 12A).

Thus, to the extent that Gordon discloses the insertion of null data, such null data is inserted for the purpose of having the same length for all interactive programming guide (IPG) pages to enable synchronization at a receiver, and NOT for the event of transmission channel underutilization as essentially recited in Claims 3, 13, and 16.

Moreover, to the extent that Gordon discloses replacing the null data with other data, such replacement is essentially performed at a receiver side (local neighborhood equipment) where transmission over a plurality of transmission channels has already occurred, and is not disclosed for the purpose of minimizing transmission channel underutilization as essentially recited in Claims 3, 13, and 16.

Further, the replacing of the null data with the graphic grid slices at a point subsequent to the initial transmission from the head-end in Gordon (i.e., at the LNE) renders any previously associated stream identifier and respective sequence code likely inoperable or ineffective in re-forming data at a receiver, as the stream identifier and respective sequence code would likely have to be updated and/or otherwise modified (at the LNE) to now account for the newly inserted data (graphic grid slices).

Also, while Claims 3, 13, and 16 each essentially recite that null data, that is nominally transmitted in the event of transmission channel underutilization, is replaced to minimize the transmission channel underutilization, Gordon still discloses that the null data is transmitted, from the head-end to at least the LNE, which in almost all cases represents the greatest distance (versus the LNE to the actual user terminal).

Thus, at the least, Gordon does not disclose the event of transmission channel underutilization, and further does not disclose the nominal transmission of null packets in such event, let alone the insertion of at least one group of packets **in place of** the null packets *to minimize the underutilization of the transmission channels*, as essentially recited in Claims 3, 13, and 16.

Accordingly, Gordon does not disclose all of the above-recited limitations of Claims 3, 13, and 16. A reference cited against a claim under 35 U.S.C. §102 must disclose each and every limitation of the rejected claim. Thus, independent Claims 3, 13, and 16 are patentably distinct and non-obvious over Gordon for at least the reasons set forth above.

Moreover, it is respectfully asserted that Yasuda does not cure the deficiencies of Gordon, and is silent with respect to the above-recited limitations of Claims 3, 13, and 16. Thus, it is respectfully asserted that none of the cited references, either taken singly or in any combination, teach or suggest all of the above-recited limitations of Claims 3, 13, or 16. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). Accordingly, Claims 3, 13, and 16 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above.

"If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Claims 2 and 4-8 depend from Claim 3 or a claim which itself is dependent from Claim 3 and, thus, includes all the elements of Claim 3. Claims 14-15 depend from Claim 13 or a claim which itself is dependent from Claim 13 and, thus, include all the elements of Claim 13. Claims 17-21 depend from Claim 16 or a claim which itself is dependent from Claim 13 and, thus, include all the elements of Claim 16. Accordingly, Claims 2 and 4-8 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 3, Claims 14-15 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 13, and Claims 17-21 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 16.

Reconsideration of the rejections is respectfully requested.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the fee to Deposit Account No. 07-0832.

Respectfully submitted,

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